# 4. Demand in the TDR Market

The first step when approaching TDR in any locale should be a thorough evaluation of the demand side of the development rights market. A developer's willingness to purchase increments of density is the "engine" that drives the market - and without strong demand, a TDR program will struggle.

Such an evaluation involves a rigorous examination of the on-the-ground economic realities faced by receiving site developers – an often overlooked critical step when jurisdictions seek to set up TDR programs. Once demand is adequately quantified, the amount of preservation a TDR program can affect can realistically be assessed, and a more efficient market created. That is to say, only once demand is confidently understood, should supply-side policies be batted around.

Furthermore, knowing with a degree of certainty how much developers are likely to spend for TDRs will give rural landowners an idea about the compensation they are likely to receive.

To quantify this developer's "willingness to pay" for TDRs, we conducted residual land value analyses on a series of most-likely development scenarios in the four potential receiving areas. The land residual methodology calculates the land value based on its income potential relative to the cost of development and expected industry profits, to yield what a developer would pay for the land with enhanced entitlements above the baseline. The difference between the residual land costs and the "actual" land costs represents the amount of developer funds available for TDR purchases.

But before these residual land values can be determined, the real estate market in Gallatin County, and in particular, the specific receiving area locales must first be analyzed. In doing so, the Gallatin Association of Realtors proved instrumental in providing the necessary data.

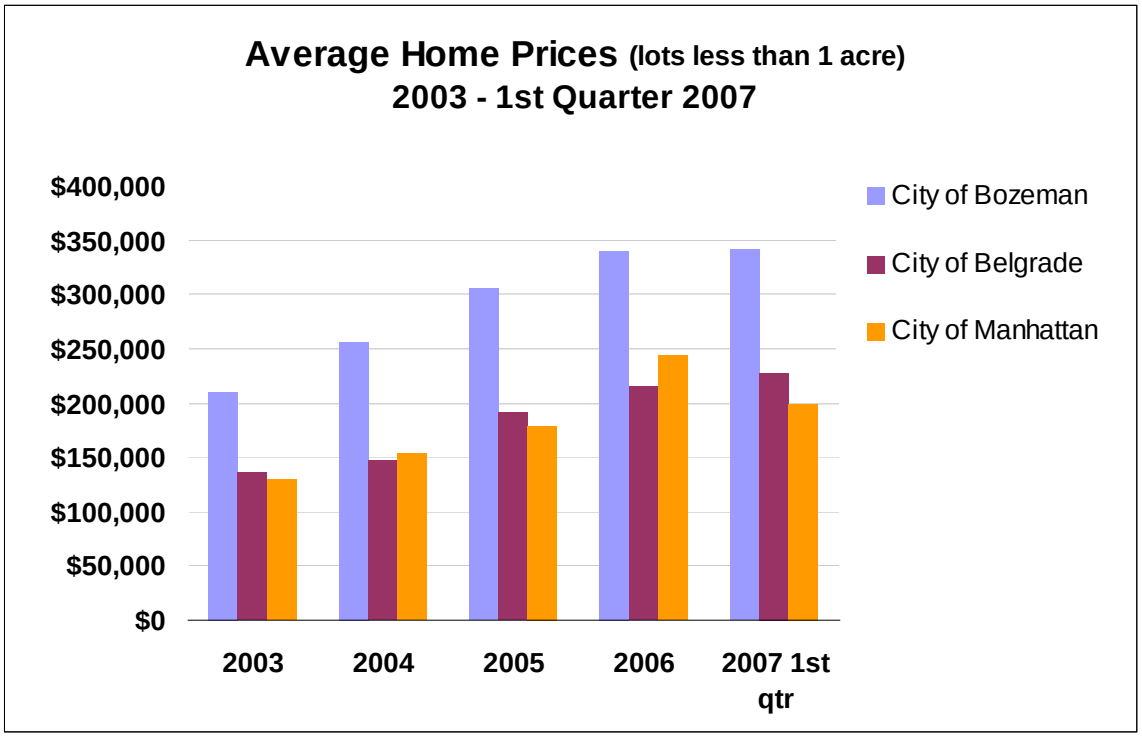
## *4.1 Gallatin Valley Real Estate Market*

Real estate in the Gallatin Valley, like many other areas in the country, experienced a rapid rise in values between 2003 and 2006. Demand was, and in many ways still is, very strong for homes in the Gallatin Valley, and in particular the City of Bozeman.

Home prices vary significantly by geography and proximity to amenity. Rather than identify all the various submarkets, we use the price trends in the cities of Bozeman, Belgrade, and Manhattan to "tell the story" about the general real estate market in Gallatin Valley.

At of the end of the 1st quarter in 2007, single family home prices on lots less than 1 acre averaged: $341,000 in Bozeman, $228,000 in Belgrade, and $200,000 in Manhattan. Appreciation rates ranged between 7 and 36 percent between 2003 and 2006 depending on the city and the year. Each city's average annual appreciation rate over this time period was: Bozeman (13.2%), Belgrade (14.1%), and Manhattan (13.4%). Figure 4.1 below illustrates this price growth.

**Figure 4.1 City Home Prices 2003 - 2007**




Source: Gallatin Association of Realtors Corporation / Southwest Montana MLS is compiled from miscellaneous sources and neither the association, nor the listing broker, nor its agents or subagents are responsible for the accuracy of the information.

Most homes in the Valley are built on subdivided property purchased from developers who are in the business of providing improved lots. There are very few large subdivisions where a single developer has prepared lots *and* built the homes to sell.

Thus, it is the lot developer who would be the one to purchase additional density in a TDR market – not the individual home builder. Therefore, our demand analysis needs to assess the improved lot developer's economic situation, and importantly, the market prices of improved lots – understanding that this is driven to a large extent by trends in home and raw land prices.

Table 4.2 below shows the historical price trends between 2003 and 2006 of improved subdivision lots (i.e. with the existing sewer, water, and road infrastructure provided) in the Gallatin Valley. Since development in the receiving areas would be on lots with sizes 5 acres or less, we only show sales data for these lot sizes.

**Table 4.2 Improved Lot Sales 2003 - 2007**

**Improved Lot Sales (subdivisions) for Valley North of Canyon**

| Year | Lot Size | # Sold | Avg Price | Med Price |
|---|---|---|---|---|
| 2003 | <1 acre | 545 | $49,776 | $44,900 |
| 2004 | <1 acre | 587 | $52,443 | $47,900 |
| 2005 | <1 acre | 378 | $98,735 | $83,500 |
| 2006 | <1 acre | 549 | $84,881 | $77,900 |
| 2003 | 1-5 acres | 64 | $121,103 | $139,400 |
| 2004 | 1-5 acres | 103 | $110,610 | $87,000 |
| 2005 | 1-5 acres | 92 | $139,439 | $84,950 |
| 2006 | 1-5 acres | 105 | $129,676 | $66,033 |

Source: Gallatin Association of Realtors Corporation / Southwest Montana MLS is compiled from miscellaneous sources and neither the association, nor the listing broker, nor its agents or subagents are responsible for the accuracy of the information.

Similar to home prices, improved lot prices in the Valley experienced a dramatic increase between 2003 and 2006 – in fact they nearly doubled. Yet, while home prices remain strong in 2007, our conversations with brokers suggest that lot prices have dropped over the last year – by up to 20% in some instances.

Through 2005 there was little supply of improved lots to meet demand in the housing market. Subsequently, lot prices rapidly increased which created a rush to develop improved lots. In the latter half of 2006, however, many large subdivisions with many lots hit the market at the same time creating a glut of supply for entry-level homes, thus driving down prices of both lots and homes.

As indication of this current over-supply, we inventoried the number of improved lots that have received either final or preliminary plat approval in the last three years. Table 4.3 indicates that more than 3,000 undeveloped lots were either recently granted final plat approval or are currently moving through the subdivision process in the Valley (inclusive of all three cities). Thus, the available inventory represents roughly a three-year supply of buildable lots.

**Table 4.3 Preliminary and Final lot approvals in Gallatin Valley**

| Jurisdiction | # Lots |
|---|---|
| Gallatin County – *Belgrade Planning Jurisdiction* | 1,015 |
| Gallatin County – *Bozeman Planning Jurisdiction* | 133 |
| Gallatin County – *Manhattan Planning Jurisdiction* | 3 |
| Gallatin County – *outside Bel, Boz, and Manhattan Planning Jurisdictions* | 734 |
| City of Belgrade | 298 |
| City of Bozeman | 891 |
| City of Manhattan | 0 |
| **TOTAL** | 3,074 |

Source: Gallatin County GIS / Planning Department

The rush to develop many of these lots filled a presumed need that ebbs and flows with the housing market. Developers who are now holding lots are reacting to this over-supply by dropping prices so as not to be left holding lots through an uncertain real estate market. For example, our interviews with brokers suggest that a typical 7,000-square-foot lot in Bozeman which sold for $100,000 in 2004 and 2005 is now selling for $60,000 - $70,000.

Larger lots with acreage (i.e. 1 acre to 5 acres in size), however, continue to experience strong demand and still capture high prices – especially in areas south of Bozeman where property with acreage is in high demand. Landowners in these areas can make significant amounts of money subdividing 160-acre lots into 1- or 2-acre properties.

This study's evaluation of demand focuses squarely on four potential receiving areas that are outside the cities – namely portions of the Bozeman donut, portions of the Belgrade donut, portions of the Four Corners Planning area, and portions of the Manhattan donut (see Figure 3.2). We further tailor the market research specific to each of these areas in order to capture the real estate and economic variability developers face when building lots near Belgrade versus Bozeman. The results of this are reflected in the lot selling prices we use in Section 4.3.

## *4.2 Development Scenarios*

In this section, we identify a set of "most likely" development scenarios in order to quantify the developer's willingness to pay for increments of density in the four receiving areas.

It would be erroneous to assume a single type of subdivision would be built throughout all four receiving areas. Land prices, home selling prices, and infrastructure availability (sewer, water, and roads) vary significantly by area. These variances will dictate to a large degree the type of development that would command TDR purchases. Moreover, these variables will determine a project's economic returns and to what extent developer's may be willing to buy extra density.

For example, our conversations with brokers suggest that there is great demand in parts of the Bozeman donut for houses on larger ½- to 1-acre lots that would not be serviced by an existing sewer and water provider; these developments would have to incur the costs to provide their own sewer/water systems. In contrast, lots that are close to City limits where raw land cost are the highest in the Valley (i.e. close to $90,000 per acre) with easy access to existing municipal sewer and water would likely be built at minimum densities of 6 units per acre. These two examples will have distinctly different economic incentives to purchase density.

For these reasons, we establish a set of prototypical development scenarios likely to be built in the various receiving areas (see receiving site map Figure 3.2), and estimate plausible densities based on land use and market realities. We use characteristics of approved subdivisions– that is, gross acreage, net acreage (less roads and open space), density (i.e. number of units per acre), lot sizes, etc. – to establish the scenarios modeled. This assumes that approved subdivisions reflect what the market can bear in terms of densities and lot sizes.[1]

The following discussion and Table 4.4 summarize the development scenarios we model. Each represents a likely development that would command TDRs to exceed the baseline density of 1 unit per 5 acres.

- **Scenario #1** is indicative of a high-density subdivision (6 units/acre) very close to existing city limits; development in these areas is likely to be annexed within the next 5 years. Consequently scenario #1 is close to a sewer and water provider and would incur the costs of development that is associated with the City's development regulations. These include higher densities, urban as opposed to rural road costs,[2] city impact fees, etc. It also includes parcels in the donut that are likely to annex to Bozeman.

[1] It is plausible that subdivisions could be built to greater densities than we model; but as mentioned, we feel it is more realistic to reflect the conditions the market is currently generating.
[2] Urban roads are more costly since they require sidewalk, curb, and gutter.

- **Scenario #2** represents a medium density subdivision (2-3 units/acre) that is within or very close to an existing unincorporated urban area. A scenario #2 subdivision is close enough to tie into an existing sewer / water provider such as Utility Solutions or RAE sewer and water.[3]

- **Scenario #3** is indicative of a medium density subdivision, similar to #2, but is too distant to tie into an existing sewer / water provider. For this reason, a scenario #3 subdivision would be built with a central "package" sewer and community well water supply system.

- **Scenario #4** is a low density subdivision (1 unit/acre) that is distant from existing sewer and water providers. Because of the low density, the subdivision is built with community well and individual septic.

**Table 4.4 Development Scenarios Statistics**

| | Development Scenarios | | | |
|---|---|---|---|---|
| | **Scenario #1** | **Scenario #2** | **Scenario #3** | **Scenario #4** |
| Gross Subdivision Acreage | 100 ac | 300 ac | 300 ac | 100 |
| % Open Space | 10% | 25% | 25% | 15% |
| % Roads | 10% | 10% | 10% | 10% |
| Net Acreage | 80 | 195 ac | 195 ac | 75 |
| Density | 6 lots/ac | 2 -3 lots/ac | 2 -3 lots/ac | 1 lot/ac |
| # lots | 600 | 600 | 450 | 100 |
| Av Lot Sizes | 6,000 sf | 10 - 12,000 sf | 10 - 12,000 sf | 33,000 sf |
| Av House Size | 1,800 sf | 2,200 sf | 2,200 sf | 3,000 |
| miles of road in subdivision | 3.5 | 6 | 6 | 2 |
| distance to existing sewer/water provider | < .5 mile | < 2 mile | > 5 mile | > 5 mile |

[3] Utility Solutions has a large amount of overall water and sewer system capacity while RAE does not.

## *4.3 Developer Willingness to Pay Analysis*

A critical determinant in the success of a TDR market is to know, with a high degree of certainty, how much developers may be willing to pay for increments of density in their subdivisions. Throughout this section, we define an "increment of density" as being the creation of a buildable lot, not the creation of a newly constructed house.[4]

To evaluate this potential demand in Gallatin County, we estimate the probable value to a developer of increasing his/her density in the four receiving areas from 1 unit per every 5 acres (i.e. the base density) to the densities described in the scenarios above. In doing so, we utilize a land residual methodology. This method calculates the land value to the developer based on its income potential relative to the cost of development and expected profits. The result yields what a developer would pay for the land with enhanced entitlements or the "residual land cost."

From a theoretical standpoint, the willingness to pay is the difference between the land as it would be valued with underlying entitlements of 1 unit per 5 acres and the land as it might be valued with enhanced entitlements (e.g. 3 units per acre as in scenarios 2 and 3). This amount is difficult to arrive at directly, but can be backed into by assessing developers' costs, revenues and expected profits for the different development scenarios.

This approach, essentially, involves running development scenario pro-formas in each of the four receiving areas. Detailed descriptions of the various costs and assumptions are described in the "notes" section for each pro-forma in Appendix A. But in summary, the analysis captures the following variables by geography.

- 2006 Market price of improved lots (varies by lots size and location)
- Raw land costs
- Predevelopment costs
    - Land holding costs
    - Legal fees
    - Professional fees
- Site development / Infrastructure costs
    - Sewer / Water (scenarios will have one of the following)
        - Tying into existing sewer/water system
        - Central sewer and community well
        - Individual septic and community well
        - Individual well and septic
    - Roads (scenarios will have one of the following)
        - Urban roads for sites annexing into cities

[4] However, the term "unit" is used when referencing the relevant county zoning regulation involving residential density. It can be assumed that one buildable lot is equivalent to one transferable development credit (i.e. a potential unit).

        - Rural county roads
- Building construction costs (this is left out since we are modeling only improved lots)
- Indirect costs
    - Impact fees
    - Financing
    - Insurance
    - Marketing/advertising/commission & closing
- Project profit

Generally speaking, the development industry considers a project to pencil if the total revenue from sales can provide a net margin (i.e. profit) that is 10 - 15% of total project costs. Therefore, the output in our model is a residual land cost or simply the added land cost a developer is willing to incur for additional density while still acquiring a profit that is 12% of total project costs.

We compare the residual land cost to the "actual" land costs – that is, what the land is currently selling for on the open market. The difference between these represents the total maximum amount of developer funds available for TDR purchases.

As a final step, we divide the available TDR funds by the total number of units in each development scenario. This provides a per unit "willingness to pay" (WTP) for TDRs.

### *Summary of receiving area willingness to pay*

Obviously this WTP will be different by development scenario and by receiving area as improved lot selling prices, land costs, and the availability of infrastructure vary significantly throughout the Gallatin Valley. Chart 4.2 on the following page shows all the WTP results. These range from a low of $1,900 per additional lot for annexing, scenario 1 development in the Manhattan donut, to a high of $25,000 for larger, 1 acre lot developments (scenario 4) in the Bozeman donut.

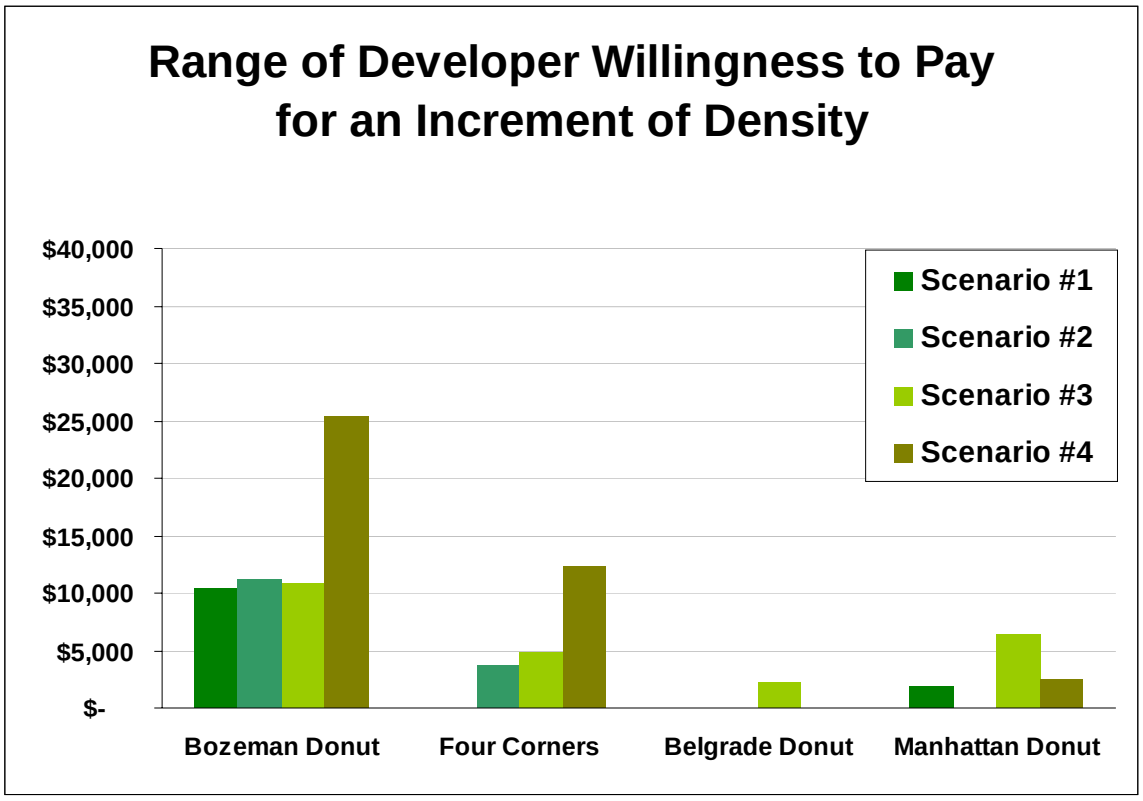
Upon weighting the area-specific WTP results based on the amount of additional lot potentially demanded, the average WTP is $7,229 across the whole market.

In general, we find that developers are willing to pay between 5% and 17% of the current selling price of improved lots for the right to build an additional lot beyond the 1 lot per 5 acre baseline density. It must be stressed that these figures represent static "snapshots" in time of what developers would pay now – they are subject to change with changing market conditions. That is, the WTP could go up if the real estate market strengthens in the future, or it could go down if the housing market cools considerably.

Table 4.5 shows a summary of the price, and cost assumptions for each receiving area and all the outputs from the analysis that produced the findings just described. The reader is

encouraged to peruse Appendix A for the complete analysis results as well as the receiving site map in Section 3.

***Chart 4.2 Range of Developer Willingness to Pay***




- **Bozeman Donut:** In the Bozeman donut raw land costs range from $40,000 to $90,000 per acre depending on the location. Lot prices range from $65,000 to $150,000 depending on the location and lot size.
    - **Scenario 1** – where development is likely to annex into the City of Bozeman, the WTP is $10,359 for an additional lot above 1 unit per 5 acres. This represents 15% of a typical lot's selling price. These areas are directly adjacent to the City with the highest land costs in the Valley ($60,000 - $90,000 per acre). Furthermore, annexing developments incur higher site development costs to meet the City's development regulations. These added costs relative to the lot prices act to keep the WTP around $10,000.
    - **Scenarios 2 and 3** resulted in WTP's of $11,170 and $10 860 respectively or 17% of lot selling price.
    - **Scenario 4** – larger 1 acre lots located in the south and southeastern portions of the Bozeman donut fetch a premium in the market and result

in the highest WTP numbers. We expect developers to be willing to pay up to $25,369 for additional 1 acre lots.

- **Four Corners Planning Area**: In the Four Corners area land costs are typically in the $30,000 per acre range depending on location. Lot prices range from $60,000 to $100,000 depending on location and lot size.
    - **Scenario 1** – in Four Corners there are no properties that would be annexed.
    - **Scenario 2**, where development would incur the costs to tie into Utility Solutions for sewer and water, we found developer WTP to be $3,706 (6% of lot selling price). Density in areas serviced by Utility Solutions is limited to only 2.3 units per acre; not because of overall system capacity, but because of the limited capacity of the local pipes. If the density were higher, the WTP would be greater.
    - **Scenario 3** – in the limited situations where it does not make sense to use Utility Solutions, we found the costs of developing with a "package" sewer and water treatment commensurate to scenario 2; the WTP in this case was $4,749 (8% of lot selling price).
    - **Scenario 4** – large lots in the southern outskirts of the Four Corners area command the second highest developer WTP; $12,364 per additional lot.

- **Belgrade Donut** : Land costs in the Belgrade donut are $20,000 - $25,000 per acre and lot selling prices $45,000.
    - **Scenario 1** – Because the City of Belgrade is facing significant infrastructure capacity constraints we assume the City is not planning to annex any development in the near term.
    - **Scenario 2** – All areas of the Belgrade donut that are likely to use Utility Solutions for their sewer and water needs are captured in the Four Corners receiving area. There are no other sewer/water providers in the Belgrade donut; thus we assume no scenario 2 development in the Belgrade donut.
    - **Scenario 3** – subdivisions with package sewer and water are the only development that we assume are likely to be built in the Belgrade receiving area. The WTP is likely to be $2,204. The high land and infrastructure costs relative to lower lot selling prices result in the lower WTP.

- **Manhattan Donut:** Land costs in the Manhattan donut are $20,000 - $25,000 per acre and lot selling prices are typically $45,000.

    - **Scenario 1** – lower lot selling prices relative to the higher development costs of annexing into the City, make the WTP for scenario 1 in Manhattan $1,937.
    - **Scenario 2** - There are no other sewer and water providers other than the City. We therefore assume all development in the Manhattan donut not annexing into the City would be on package sewer and water systems.

- **Scenario 3** – With package sewer and water systems and 3 unit-per-acre densities developers may be willing to pay up to $6,466 per additional lot or 13% of the lot selling price.
- **Scenario 4** – Large lot developments outside Manhattan will only stimulate developers to pay up to $2,420 or 3% of lot selling price. The large lots are not able to catch enough of a premium to warrant higher developer WTP.

From the discussion above, one can infer that a threshold determinant of developer willingness to pay is the relationship between raw land costs, lot selling prices, and the cost/availability of infrastructure in the various receiving areas. The costs of tying into existing sewer/water or incurring the cost of a package system affect how much money developers have available to buy density. When these three cost variables are significant developers have little money left over to purchase TDRs.

It must be stressed that our analysis is based on 2006 sales data. The WTP values are thus snapshots in time; if the Gallatin Valley real estate market again heats up, like it did in 2003 – 2005, the WTP numbers will be greater. Likewise, if the real estate market cools, the WTP values will drop significantly.

It should also be noted that the results expressed above represent theoretical maximums that developers would pay in the market place. It is assumed that willing TDR buyers will seek to find prices well below their maximum willingness to pay. The actual or market price they pay will depend to a large extent upon the supply of available TDRs.